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ABSTRACT

A study described the 1989-90 Chapter 1 Reading Skills Center program, and assessed the effectiveness of its implementation. The program provides supplementary, individualized instruction in reading and writing to Chapter 1-eligible students in New York City nonpublic schools. During 1989-90, the program served 284 students in grades 4 through 8 from 4 nonpublic schools. Face-to-face services (3-5 sessions a week lasting from 35 to 60 minutes) were offered to 233 students, while 51 students received a combination of the above and computer-assisted instruction (1 session per week of 40 minutes). A parent participation program and a staff development program were already in place. Data consisted of site visits, interviews with program teachers, and data from program documents. Results indicated that: (1) 20% of parents met with the teacher in individual conferences and 87% of the parents received progress reports; and (2) the overall mean gains on all subtests for students receiving face-to-face instruction or face-to-face instruction in combination with computer-assisted instruction were statistically significant. Recommendations include devoting additional attention to writing instruction, and making efforts to increase parents' participation in the program. (Sixteen tables of data are included.) (RS)

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OREA Report

CHAPTER 1
READING SKILLS CENTER PROGRAM
1989-90

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BUREAU OF NONPUBLIC SCHOOL REIMBURSABLE SERVICES

CHAPTER 1 READING SKILLS CENTER PROGRAM
1989-90

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CHAPTER 1 READING SKILLS CENTER PROGRAM
1989-90
EXECUTIVE SUMMARY*

BACKGROUND

The Chapter 1 Reading Skills Center program provided supplementary, individualized instruction in reading and writing to Chapter 1-eligible students in New York City nonpublic schools. Its major goals were to enable students to develop competency in reading and to integrate reading skills into all subject areas in the classroom.

DELIVERY OF SERVICES

On July 1, 1985, the Supreme Court ruled that instruction by public school staff on the premises of nonpublic schools was unconstitutional. Since the 1986-87 school year, students have received Chapter 1 face-to-face instruction at public schools, leased neutral sites, mobile instructional units (M.I.U.s), and nondenominational schools. Since 1987-88, Chapter 1 services have also been provided via computer-assisted instruction (C.A.I.), in which teachers monitor student progress and provide instructional assistance via modems from a Board of Education administrative center. At present, students from the Reading Skills Center program are taught in one of two instructional modes: face-to-face instruction or combination services, i.e., C.A.I. supplemented with face-to-face instruction.

STUDENTS SERVED

During 1989-90, the Reading Skills Center program served 284 students in grades four through eight from four nonpublic schools in New York City. Face-to-face services were offered to 233 students, while 51 students received a combination of face-to-face and computer-assisted instruction (combination services).

PROGRAM ORGANIZATION

The program was funded for $667,572. The staff included one coordinator and eight teachers. Participating face-to-face students were bused or escorted to program sites for three to five sessions each week lasting from 35 to 60 minutes. Computer-

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* This summary is based on the Evaluation Section report of the Chapter 1 Reading Skills Center program, 1989-90, prepared by the OREA Instructional Support Evaluation Unit.

assisted instruction was given at a computer lab at the nonpublic school site for a 40-minute session once a week.

PROGRAM OBJECTIVE

The program objective was that students would make statistically significant normal curve equivalent (N.C.E.) gains from pretest to posttest on the Reading Comprehension, Language Expression, and Language Mechanics subtests of the California Achievement Test (CAT). The Reading Comprehension subtest measured performance in reading, while the Language Expression and the Language Mechanics subtests measured writing skills. Mean differences in scores from fall 1989 to spring 1990 on all tests were analyzed.

EVALUATION METHODOLOGY

To determine whether the program was implemented as proposed, OREA evaluators conducted a site visit, interviewed program teachers, and reviewed data from program documents.

PROGRAM IMPLEMENTATION

Parental Involvement

A Parental Involvement program was in place, and it included a number of activities. Data collected on these activities are presented below:

- Twenty percent of the parents met with the teacher in individual conferences;
- Eighty-seven percent of the parents received progress reports; and
- Other activities, participated in by less than fifteen percent of the parents, included orientation meetings, parent-teacher workshops, and parent-teacher contact by telephone.

Staff Development

The Staff Development program provided intensive training for teachers to help them improve their instructional practices. The program consisted of:

- Workshops. The program coordinator and staff met to discuss professional issues through presentations, group discussions, and hands-on activities.
- Newsletter. In the monthly newsletter, News and Views from the Reading Skills Center, the program coordinator

expanded upon material covered in the workshops and described lessons observed during site visits.

- Field visits and post-observation conferences. Random site visits were made to classrooms throughout the school year by the program coordinator. These visits included observations of lessons and post-observation conferences.

STUDENT ACHIEVEMENT

Face-to-face instruction. The overall mean gains on all subtests for students receiving face-to-face instruction were statistically significant, meeting the program's criterion for success. While the effect sizes for the Language Expression and Language Mechanics subtests of the CAT were moderate or small, the effect size for the Reading Comprehension subtest was large and educationally meaningful. In addition, the overall gain in 1989-90 was larger than the previous year's gain on the Reading Comprehension subtest. However, results for individual grades showed that grade four face-to-face students did not meet the criterion for success on the Language Expression subtest.

Combination services. The overall mean gains for students receiving face-to-face instruction in combination with C.A.I. were statistically significant on all three subtests, meeting the program's criterion for success. While the effect sizes for the Language Expression and Language Mechanics subtests of the CAT were moderate or small, the effect size for the Reading Comprehension subtest was large and educationally meaningful. In addition, the overall gain increased from the previous year's gain on the Reading Comprehension subtest. However, results for individual grades showed that grade six combination services students did not meet the criterion for success on the Language Expression subtest.

RECOMMENDATIONS

Based on the evaluation findings and other information presented in this report, the following recommendations are made:

- Since the results for grade four face-to-face only students and grade six C.A.I. students on the two subtests that measure writing skills did not meet the program's criterion for success, program staff should devote additional attention to writing instruction.

- Since less than one-fourth of the parents participated in all but one parental involvement component, efforts should be made to further increase parents' participation in the Reading Skills Center program.

ACKNOWLEDGEMENTS

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Judith Ghinger prepared this report. Ilan Talmud analyzed the data upon which this report is based and Yvonne Spoerri assisted in the production of tables and typed the final draft.

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I. INTRODUCTION

PROGRAM PURPOSE

The Chapter 1 Reading Skills Center program provides supplementary, individualized instruction in reading and writing to eligible students in grades four through eight attending nonpublic schools in New York City. The goal of the program is to enable students to develop competency in reading so that they can integrate reading skills into all subject areas, and integrate reading with other communication skills, especially writing and thinking skills. In addition, the program is designed to help students develop a positive self-image through a series of successful experiences in the Reading Skills Center program and in the nonpublic school classroom.

ELIGIBILITY

Students were eligible for Chapter 1 services if they lived in a targeted attendance area and scored at or below a specific cutoff point on state-mandated tests or standardized reading tests. A majority of the schools used either the Scott Foresman Test or the Comprehensive Test of Basic Skills. The cut-off point for program eligibility ranged from three months below grade level for students in the first grade to two or more years below grade level for students in high school.

STUDENT PARTICIPATION

In 1989-90, the Reading Skills Center program served 284 students in grades four through eight. The largest number of

students participating in the program, 29.6 percent, were in the fifth grade (see Table 1). The smallest number of students, 12.7 percent, were in the eighth grade.

History of Participation

Table 1 also shows the length of time students have been participating in the program. About seventy percent of the students participated in the program for the first time in 1989-90. Almost 19 percent of the students were in their second year in the program, and about eleven percent had been in the program three or more years.

Participation in Computer-Assisted Instruction

Fifty-one students received a combination of computer-assisted instruction (C.A.I.) and face-to-face instruction (Combination Services) (see Table 2). None of the students received C.A.I. without some face-to-face instruction.

Student Participation in other Chapter 1 Programs*

Many students participated in other Chapter 1 nonpublic school programs. Students who appeared to have social and/or emotional problems that might interfere with their learning were referred to the Clinical and Guidance program for diagnostic and counseling services. Sixty-one percent of the Reading Skills Center students were referred to the Clinical and Guidance program. Students also participated in the Corrective Mathematics program when there was a demonstrated need.

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* See Appendix A for a brief description of Chapter 1 Nonpublic School Reimbursable Services, 1989-90.

TABLE 1

Student Participation in the Reading Skills Center Program, by Grade and Years in Program, 1989-90

Grade	N	%	Number of Years in the Program					
			1		2		3 or more	
			N	%	N	%	N	%
4	40	14.1	36	90.0	4	10.0	--	--
5	84	29.6	66	78.6	17	20.2	1	1.2
6	67	23.6	43	64.2	15	22.4	9	13.4
7	57	20.0	41	71.9	9	15.8	7	12.3
8	36	12.7	14	38.9	8	22.2	14	38.9
Total	284	100.0	200	70.4	53	18.7	31	10.9

- More than two-thirds (70.4 percent) of the students were participating in the program for the first time.
- Almost one-fifth (18.6 percent) of the students were in the second year of the program.
- About 11 percent of the participants had been in the program for three or more years.

TABLE 2

Reading Skills Center Program Students
Who Received Combination Services, by Grade, 1989-90

Grade	N	%
4	8	15.7
5	8	15.7
6	15	29.4
7	13	25.5
8	7	13.7
Total	51	100.0

- Fifty-one students, about 18 percent of the total number of students (284), received combination services.
- The largest number of combination services students were in grades six and seven.

Seventy percent of the Reading Skills Center students participated in the Corrective Mathematics program.

PROGRAM OBJECTIVE

The following objective was to be achieved as a result of the implementation of the 1989-90 Reading Skills Center program:

- Students would make statistically significant gains in normal curve equivalent units (N.C.E.s)* from pretest to posttest on the Reading Comprehension, Language Expression, and Language Mechanics subtests of the California Achievement Test (CAT).

PROGRAM EVALUATION

The purpose of the 1989-90 evaluation by the Office of Research, Evaluation, and Assessment/Instructional Support Evaluation Unit (OREA/I.S.E.U.) was to describe the implementation of the Reading Skills Center program and assess its impact on student achievement in reading skills. The following methods were used to conduct this evaluation:

- a review of program documents and interviews with program staff concerning program organization and funding, the curriculum, parental involvement, and staff development activities;
- a review of data retrieval forms containing information about grade placement, number of years in the program, frequency of contact time, and referrals to the Clinical and Guidance and Corrective Mathematics programs; and
- analyses of students' scores on standardized reading tests administered in the fall and spring of the school year.

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* N.C.E. scores are similar to percentile ranks but, unlike percentile ranks, are based on an equal-interval scale. N.C.E. scores are based on a scale ranging from one to 99, with a mean of 50 and a standard deviation of approximately 21. Because N.C.E. scores are equally spaced, arithmetic and statistical calculations such as averages are meaningful; in addition, comparisons of N.C.E. scores may be made across different achievement tests.

SCOPE OF THE REPORT

The purpose of this report is to describe the 1989-90 Chapter 1 Reading Skills Center program and assess the effectiveness of its implementation. The first chapter introduces the program, describes student participation, and the evaluation methodology. Chapter II describes the program's organization and funding, the curriculum, instructional approach, and the implementation of the Parental Involvement and Staff Development programs. Chapter III reports on student attendance and academic achievement findings. Chapter IV offers conclusions and recommendations. The appendix presents brief descriptions of Chapter 1 Nonpublic School Reimbursable 1989-90 programs.

II. PROGRAM DESCRIPTION AND IMPLEMENTATION

ADMINISTRATION

Funding and Staff

During 1989-90, the Reading Skills Center program used a pull-out method to provide instruction for students from nonpublic schools. The staff included one program coordinator and eight teachers. Funding for the program was $667,572,000.

Delivery of Chapter 1 Services: Legal Parameters

Face-to-face instruction. On July 1, 1985, the Supreme Court held that the local educational agencies' most common method of serving Chapter 1-eligible children--instruction by public school teachers on the premises of nonpublic schools--was unconstitutional. As a result, alternative methods for providing Chapter 1 services were devised. Eligible students attending nonpublic schools now receive Chapter 1 services at mobile instructional units (M.I.U.s), public school sites, leased neutral sites, and nondenominational schools.*

Computer-assisted instruction. Only computer-assisted instruction (C.A.I.) takes place in the nonpublic schools. C.A.I. must be administered in designated computer labs. In order to comply with the Supreme Court ruling, Chapter 1 teachers are

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* Mobile instructional units are mobile classrooms, generally parked outside the school being served; public school sites are designated classrooms in public schools; leased neutral sites are classrooms in public buildings such as community centers; nondenominational sites are at nondenominational schools that are not public schools.

not present in the computer labs. Instead, the labs are supervised by trained, noninstructional technicians who maintain and operate the equipment and ensure order and safety for students. In addition, in compliance with the Supreme Court ruling, the hardware and software utilized for Chapter 1 students are non-divertable--that is, they cannot be utilized in the nonpublic schools for anything but the instruction of Chapter 1 students.

FACE-TO-FACE INSTRUCTION

Scheduling and Class Size

Students from five nonpublic schools received supplemental, face-to-face reading skills instruction at four M.I.U.s and one neutral site. Each teacher worked with students in sessions lasting from 35 to 60 minutes. Students were scheduled for three to five sessions each week, with most students attending four or five sessions a week.

Instructional Approach: Diagnostic-Prescriptive

The Reading Skills Center program used a diagnostic-prescriptive approach to provide individualized instruction to students. Students were tested formally and informally throughout the school year to:

1) assess individual strengths and weaknesses in reading skills in order to develop instructional objectives for each student; and

2) determine when students have mastered skill areas and are ready to move on to the next level of study.

Curriculum

The Reading Skills Center program curriculum combines reading

skills with metacognitive, or thinking strategies. Reading skills are reinforced through the use of the writing process. The curriculum is designed to bring students from a pre-reading stage to a reading stage and then beyond to the 'post-reading' or independent stage. In the final stage, students have learned to interact with the text as independent readers with the teacher as facilitator.

Reading skills. Three reading skills areas formed the core of the program's curriculum at all levels of instruction. They were the following:

- Phonic skills. Students learned to identify and understand words by recognizing and combining letters and sounds, for instance, identifying the short "a" sound in the word "bat."
- Structural analysis skills. Students learned what the components of words mean and how they work. Examples of these components are: prefixes such as "pre," suffixes such as "ing" and "er," and singular and plural forms.
- Comprehension skills and strategies. Students learned how to use these skills and strategies to help them understand what they read, for example, predicting, inferencing, noticing details, and classifying.

Metacognitive skills. The curriculum helped students to become competent in the application of metacognitive strategies, or thinking skills, to the reading process. Students were taught to become aware of their thinking processes, so that they could identify the causes of comprehension breakdown and solve their reading problems independently.

Writing skills. Remedial activities in the writing component were used to motivate and reinforce reading skills. They included the writing of book reports and story summaries, as well

as other exercises growing out of students' reading.

Materials

A variety of materials designed to meet the needs, interests, and abilities of students were used, including workbooks, reading kits, trade books, audio tapes, teacher-made materials, and materials designed by the program coordinator. Some of the reading matter used were specific to the various content areas studied in the classroom such as history, mathematics, and science.

COMPUTER-ASSISTED INSTRUCTION

Scheduling of Services

Reading Skills Center students from one nonpublic school received a combination of face-to-face and computer-assisted instruction. The school's computer lab went on-line for the 1989-90 school year in October 1989. Students worked in the Chapter 1 computer labs in their nonpublic school for 40 minutes, once a week. In addition, they were escorted to a neutral site for 45 minutes of face-to-face instruction three days a week .

Monitoring Instruction at a Distance

As mentioned above, in order to comply with the Supreme Court ruling, Chapter 1 teachers were not present in computer labs with students. Instead the Chapter 1 teachers monitored student progress and intervened in the instructional process from computer rooms at the Board of Education administrative center. One room housed the computer work stations which included both

computers and printers*. Not only were the computers connected via modems to the nonpublic school Chapter 1 computer labs, but there were also telephones in each room to allow the Chapter 1 teachers to speak to the noninstructional technicians located at the nonpublic school sites.

Teachers performed the following activities at the administrative center of the Board of Education:

- reading printouts of student progress and deciding what, if any, teacher intervention with the software is required;
- previewing student lessons;
- communicating with noninstructional technicians; and
- receiving staff development in C.A.I.

Combination Services: Face-to-Face Instruction

The same Chapter 1 teacher who monitored students' progress with the C.A.I. curriculum provided them with instruction in the face-to-face mode. After students' individual print-outs were reviewed, areas of weaknesses were remediated during face-to-face instruction. In addition, ad-hoc groups were formed, placing students with common weaknesses in the same instructional groupings.

Curriculum

All students used sofware provided by the Jostens Learning Corporation. The Jostens Reading Curriculum is compatible with the face-to-face curriculum used by the Reading Skills Center program. It was designed to develop the literacy skills needed

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* Work stations were shared with other Chapter 1 teachers.

for proficient reading and provided a balance of strategy and application lessons. Literary genres that were part of regular face-to-face instruction such as folktales, myths, legends, mystery, adventure, and biography were introduced to students by the C.A.I. curriculum as well.

Basic reading processes, such as identifying the main idea, drawing inferences, understanding sequence, cause and effect, and making comparisons, were taught. Students developed skills in word analysis, vocabulary, comprehension, and study skills. Specific lessons helped students learn to use organizing strategies such as story mappping, summarizing, and outlining.

Reading Skills Center teachers have been in the process of matching the two curricula even more closely and expect to make further changes in the software in time for the 1990-91 C.A.I. program.

PARENTAL INVOLVEMENT PROGRAM

Introduction

In order to increase parental involvement in the Reading Skills Center program, parental involvement activities were administered. These included contact between parents and teachers by telephone, correspondence, and in person. Teachers were asked to report on the number of parents involved in the various parental involvement components. The results are given below (see Table 3), along with a brief description of their implementation.

Orientation meetings. Teachers reported that about 14 percent

TABLE 3

Percentage of Reading Skills Center Full-Year Students Whose Parents Were Involved in Components of the Parental Involvement Program, 1989-90

Component	Percentage of Students Whose Parents Participated	
	N	%
Phone Contact with Teacher	18	6.3
Met with Teacher	58	20.4
Received Student Progress Reports	248	87.3
Attended Orientation Meeting	41	14.4
Attended Parent Workshop	30	10.6

- The largest rate of contact (87.3 percent) was through students' progress reports.
- One-fifth of the parents (20.4 percent) met with their students' teacher.
- The telephone contact component, used to make contact with parents of combination services students, had a participation rate of 6.3 percent. This comprised about 35 percent of the number of combination services students.

of the parents attended orientation meetings. At these meetings, teachers gave parents an overview of program activities and took them through the process the child experiences in the classroom, using storybooks or demonstrating methods, such as semantic mapping. Diagnostic procedures were discussed to introduce parents to the concept of ongoing evaluations designed to show children's progress and growth.

Parent-teacher workshops. In 1989-90, several Reading Skills Center teachers arranged workshops with parents. Eleven percent of the parents attended such workshops, with about five parents attending individual workshops. The workshops were designed to encourage parental support of school-based projects and, particularly, to give parents support in helping their children to read at home. Some teachers distributed materials that parents could use to help their children with their reading at home. Also, folders containing children's work were available for parents to look at.

Other parental involvement components. In addition, the Parental Involvement program included the following components:

- Telephone contact. Teachers reported having telephone contact with six percent of the parents during the school year. These were parents of combination services students, and accounted for about 35 percent of the number of C.A.I. students.

- Individual parent-teacher conferences. Twenty percent of the parents met with the Chapter 1 teacher in informal, private conferences to discuss their children's progress.

- Progress reports. Eighty-seven percent of the parents received reports on the progress their children were making. Reports on students' progress were sent home to parents twice a year, at midyear and in June. These reports

provided information on students' achievement in skill areas and the number of library books students read.

STAFF DEVELOPMENT

An Overview

The goal of the 1989-90 staff development program was to help teachers improve their instructional practices. The program's approach stressed the integration of reading and writing skills with cognitive, or thinking, strategies. The program consisted of the following components:

- Workshops. The program coordinator and staff met to discuss professional issues through researched presentations, group discussions, and hands-on activities.
- Newsletter. In the monthly newsletter, News and Views from the Reading Skills Center, the program coordinator reviewed, developed, and expanded upon material covered in the workshops. In addition, lessons observed during site visits by the program coordinator were described, and new research in the field was summarized.
- Field visits and post-observation conferences. Random site visits were made to classrooms throughout the school year by the program coordinator. These visits included observations of lessons, observations of one-on-one pupil-teacher conferences, and demonstration lessons by the coordinator. Post-observation conferences, at which professional and personal concerns were shared, were held between teachers and the coordinator.

Staff Development Workshops. Twelve all-day staff development workshops were held during the 1989-90 school year. These included a special series in February which focused on parental involvement in the teaching/learning process. Reading Skills Center workshops generally were structured around presentations given by the program coordinator and teachers, with occasional invited speakers. These often included reviews of current professional literature on reading and writing skills. "Reports

from the field," describing projects implemented in the classroom were also regularly presented at staff development workshops.

Presentations were often accompanied by group discussions and hands-on activities. Demonstration lessons were given, as well. In addition, educational materials and supplies were shared and distributed, and teachers previewed and selected materials for their classes.

The workshops also addressed the following topics:

- Vocabulary Development: Auditory Vocabulary Strategies
- Metacognitive Processes in the Classroom
- The Think-A-Loud Process
- Application of Thinking/Reading to Content Areas
- Question/Answer/Response Strategies
- Collaborative Learning

"Parents-As-Partners". This special series of Reading Skills Center workshops for teachers focused on planning, organizing, and implementing parent conferences. The teachers developed Parent Activity Packages to be used as the basis of ongoing work with parents in individual and group conferences with parents and teachers. These packets, presented and demonstrated at the workshops, contained at-home tasks for parents to share with their children, based upon the following areas of the Reading Skills Center curriculum:

- Story grammar
- Metacognition, or thinking skills
- Self-monitoring strategies

- Key reading strategies
- Paragraph organization
- Resources, such as the Jim Trelease Read-Aloud Handbook

On May 24, the Reading Skills Center held a final workshop to evaluate parent-teacher conferences and to make recommendations for fall 1990. Subsequent to this workshop, "A Hands-On Guide to Developing Interactive Parent-Teacher Workshops," developed by the Reading Skills Center staff, was distributed to assist teachers in the process of developing, implementing, and evaluating interactive workshops for parents. In June, all the Reading Skills Center teachers were sent Parent Activity Packets that were developed as a result of the 1989-90 staff development activities. A meeting was planned for November 1, 1990 to share reactions by teachers and parents to the packets.

Computer-Assisted Instruction

The C.A.I. teachers, besides participating in the staff development activities of the Reading Skills Center program, also received training directly from the software company in C.A.I. The software company representatives scheduled training sessions throughout the school year on specific topics, and were available in person and by telephone for individual problems.

For further assistance, the software company provided teacher manuals which were kept in the computer rooms at the administrative center. These manuals contained information on the operation of the systems, software curriculum contents, and the interpretation of printouts of individual and class progress

reports.

The software company also provided training to the noninstructional technicians. Hotlines were made available to the technicians for technical assistance.

III. STUDENT ACHIEVEMENT RESULTS

ATTENDANCE

The average attendance for the Reading Skills Center program was 98 percent. Aggregate attendance information was provided to OREA by the Chapter 1 program administration.

METHODOLOGY

The impact of the 1989-90 Reading Skills Center program on student achievement was determined by examining the change in participating students' performance on standardized tests from fall 1989 to spring 1990. The main objective for the program was that students would make a statistically significant mean gain from pretest to posttest.

Tests Administered: The California Achievement Test

In 1989-90, Reading Skills Center students took the Reading Comprehension, Language Expression, and Language Mechanics subtests of the California Achievement Test (CAT). The Reading Comprehension subtest measured progress in reading, while the Language Expression and Language Mechanics subtests measured writing skills.

Data Analyses

To determine whether the program reached its goal, students' raw scores were converted to N.C.E.s* and statistical analyses

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* A zero N.C.E. gain represents growth that is about the same as would be expected from participation in the regular classroom alone. A positive N.C.E. gain is assumed to be a direct result of participation in the Chapter 1 program.

were carried out on these converted scores. Correlated t-tests were used to determine whether the mean gains were statistically significant. Statistical significance indicates whether the changes in achievement are real, or occur by chance. However, statistical significance can be exaggerated by a large sample size or depressed by a small sample size. Furthermore, statistical significance does not address the issue of whether the achievement changes are important to the students' educational development. Thus, an effect size (E.S)* is reported for each comparison to indicate the educational meaningfulness of each mean gain or loss, independent of the sample size.

Comparisons were made for two groups of Reading Skills Center students: those who received face-to-face instruction only and those who received a combination of face-to-face and C.A.I. These comparisons were made on the basis of scores on tests administered in fall 1989 and spring 1990.

Data were analyzed by grade for all students for whom pretest and posttest scores were available**. Then, total mean differences were computed for each subtest. Finally, a t-test was used to compare the overall mean gains of students receiving

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*The E.S., developed by Jacob Cohen, is the ratio of the mean gain to the standard deviation of the gain. This ratio provides an index of improvement irrespective of the size of the sample. According to Cohen, 0.2 is a small E.S., 0 .5 is a moderate E.S., and 0.8 is considered to be a large E.S. Only E.S.s of 0.8 and above are considered to be educationally meaningful.

** For spring-to-spring comparisons, students had to be in the program for at least two years.

face-to-face instruction only and those receiving combination services.

ACADEMIC ACHIEVEMENT

Findings for Students Receiving Face-To-Face Instruction Only

Tables 4 through 6 present the academic achievement findings for students who received face-to-face instruction from fall 1989 to spring 1990. Results are given for the Reading Comprehension, Language Expression, and Language Mechanics subtests of the California Achievement Test. Each table shows mean differences and effect sizes. Mean differences were measured against the program objective, a statistically significant mean gain.

The data indicated that overall mean gains on each of the subtests were statistically significant, satisfying the program's criterion for success. Mean gains for the individual grades were statistically significant except for the following:

- grade four on the Language Expression subtest; and
- grades four and seven on the Language Mechanics subtest.

Comparison with Gains in 1988-89 for Students Receiving Face-to-Face Instruction Only

A comparison of overall mean gains on the three CAT subtests for the past two years shows an increase in the gain for the Reading Comprehension subtest from 1988-89 to 1989-90. The overall gains for the Language Mechanics and Language Expression subtests both decreased in the same two-year period. The findings for these comparisons are shown in Tables 7, 8, and 9.

TABLE 4

Mean N.C.E. Differences on the Reading Comprehension Subtest of the California Achievement Test for Full-Year Face-to-Face Reading Skills Center Program Students, 1989-90

Grade	N	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	Difference[a] Mean	Difference[a] S.D.	Effect Size
4	24	25.3	11.6	39.6	11.5	14.3	7.5	1.9
5	34	25.7	10.2	33.6	10.7	7.9	8.6	0.9
6	28	26.4	12.4	38.1	10.1	11.8	9.9	1.2
7	32	32.1	12.4	40.3	10.8	8.2	6.9	1.2
8	22	26.4	9.0	39.3	11.7	12.9	11.0	1.2
Total	140	27.3	11.4	38.0	11.1	10.6	9.0	1.2

[a] All mean differences were statistically significant at the $p \leq .05$ level.

- The overall mean gain of 10.6 N.C.E.s was statistically significant and represented an educationally meaningful gain.
- Mean gains ranged from 7.9 N.C.E.s for grade five to 14.3 N.C.E.s for grade four.
- All gains were educationally meaningful.

TABLE 5

Mean N.C.E. Differences on the Language Expression Subtest of the California Achievement Test for Full-Year Face-to-Face Reading Skills Center Program Students, 1989-90

Grade	N	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	Difference Mean	Difference S.D.	Effect Size
4	24	34.3	12.6	39.3	11.8	5.0	13.0	0.4
5	34	26.7	15.1	34.5	12.6	7.8[a]	13.5	0.6
6	28	35.0	9.8	40.1	10.9	5.1[a]	11.7	0.4
7	32	37.6	11.6	45.3	14.5	7.7[a]	10.9	0.7
8	21	31.5	8.9	38.3	15.1	6.8[a]	11.6	0.6
Total	139	32.9	12.6	39.5	13.4	6.6[a]	12.1	0.5

[a] These mean differences were statistically significant at the $p \leq .05$ level.

- The overall mean gain of 6.6 N.C.E.s was statistically significant and represented a moderate effect size.
- The statistically significant mean gains ranged from 5.1 N.C.E.s for grade six to 7.8 N.C.E.s for grade five.
- The mean gain for grade four was not statistically significant.
- The effect sizes for grades five, seven and eight were moderate. The effect sizes for grades four and six were small.

TABLE 6

Mean N.C.E. Differences on the Language Mechanics Subtest of the California Achievement Test for Full-Year Face-to-Face Reading Skills Center Program Students, 1989-90

Grade	N	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	Difference Mean	Difference S.D.	Effect Size
4	24	34.4	12.2	39.8	17.3	5.4	15.0	0.4
5	34	29.1	15.1	36.9	17.7	7.8[a]	16.0	0.5
6	28	37.0	16.4	43.3	15.2	6.2[a]	12.4	0.5
7	32	41.9	13.4	45.3	13.3	3.4	10.9	0.3
8	21	40.2	12.6	47.0	14.3	6.8[a]	13.6	0.5
Total	139	36.2	14.8	42.1	15.9	5.9[a]	13.6	0.4

[a] These mean differences were statistically significant at the $p \leq .05$ level.

- The overall mean gain of 5.9 N.C.E.s was statistically significant and represented a small effect size.
- Statistically significant mean gains ranged from 6.2 N.C.E.s for grade six to 7.8 N.C.E.s for grade five.
- Mean gains for grades four and seven were not statistically significant.
- The effect sizes for grades five, six, and eight were moderate. Effect sizes for grades four and seven were small.

TABLE 7

Comparison of Mean N.C.E. Differences
on the Reading Comprehension Subtest of the California
Achievement Test for Full-Year Face-to-Face Reading Skills Center
Program Students, Over Two School Years,
Fall-to-Spring, 1988-90

Year[a]	N	Mean Difference[b]	S.D.	E.S.
1988-89	131	8.6	9.7	0.9
1989-90	140	10.6	9.0	1.2

[a] The version of the CAT currently in use was introduced in the 1988-89 school year. Therefore, the comparison of scores is limited to these two school years.

[b] These differences were statistically significant at the $p \leq .05$ level.

- On the Reading Comprehension subtest, the overall mean gain for 1988-89 was 8.6 N.C.E.s. The overall mean gain for 1989-90 was 10.6 N.C.E.s showing an increase of 2.0 N.C.E.s. Both gains were statistically significant and educationally meaningful.

TABLE 8

Comparison of Mean N.C.E. Differences on the Language Expression Subtest of the California Achievement Test for Full-Year Face-to-Face Reading Skills Center Program Students, Over Two School Years, Fall-to-Spring, 1988-1990

Year[a]	N	Mean Difference[b]	S.D.	E.S.
1988-89	130	7.8	11.0	0.7
1989-90	139	6.6	12.1	0.5

[a] The version of the CAT currently in use was introduced in the 1988-89 school year. Therefore, the comparison of scores is limited to these two school years.

[b] These mean differences were statistically significant at the $p \leq .05$ level.

- On the Language Expression subtest, the overall mean gain for 1988-89 was 7.8 N.C.E.s. In 1989-90, the overall gain was 6.6 N.C.E.s, decreasing 1.2 N.C.E.s from the previous year. Both gains were statistically significant and represented moderate effect sizes.

TABLE 9

Comparison of Mean N.C.E. Differences on the Language Mechanics Subtest of the California Achievement Test, for Full-Year Face-to-Face Reading Skills Center Program Students, Over Two School Years, Fall-to-Spring, 1988-1990

Year[a]	N	Mean Difference[b]	S.D.	E.S.
1988-89	129	7.7	13.5	0.6
1989-90	139	5.9	13.6	0.4

[a] The version of the CAT currently in use was introduced in the 1988-89 school year. Therefore, the comparison of scores is limited to these two school years.

[b] These mean differences were statistically significant at the $p \leq .05$ level.

- On the Language Mechanics subtest, the overall mean gain in 1988-89 was 7.7 N.C.E.s. In 1989-90, the overall mean gain dropped to 5.9 N.C.E.s, a drop of 1.8 N.C.E.s. Both gains were statistically significant. The gain for 1988-89 represented a moderate effect size, while the gain for 1989-90 was small.

Findings for Students Receiving Combination Services

The achievement results for students receiving a combination of face-to-face and computer-assisted instruction are reported in Tables 10, 11, and 12. Findings are given for results on the Reading Comprehension, Language Expression, and Language Mechanics subtests. It was not possible to compute statistical significance for the gains for grades four, five, and eight, since these populations were too small.

On all three subtests, the overall mean gains were statistically significant, satisfying the program's criterion for success. The gains for grades six and seven were satistically significant on the Reading Comprehension subtest, as was the gain for grade seven on the Language Expression subtest. The gains for the following were not statistically significant:

- grade six on the Languge Expression subtest; and
- grades six and seven on the Language Mechanics subtest.

Comparison with Gains in 1988-89 for Students Receiving Combination Services

A comparison of overall mean gains on the three CAT subtests for the past two years shows an increase in the gain for the Reading Comprehension subtest from 1988-89 to 1989-90. The overall gain for the Language Mechanics subtest decreased slightly in the same two-year period. Since the overall mean gain on the Language Expression subtest was not statistically significant in 1988-89, it cannot be compared with the gain for 1989-90. The findings for these comparisons are shown in Tables 13, 14, and 15.

TABLE 10

Mean N.C.E. Differences on the Reading Comprehension Subtest of the California Achievement Test for Full-Year Combination Services Reading Skills Center Program Students, 1989-90

Grade	N	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	Difference Mean	Difference S.D.	Effect Size
4	8[b]	16.0	14.1	33.4	13.3	17.4	11.0	NA
5	8[b]	12.8	5.2	24.6	10.3	11.9	8.4	NA
6	13	19.2	12.1	27.8	9.0	8.6[a]	7.8	1.1
7	13	21.8	11.7	31.3	12.6	9.5[a]	7.7	1.2
8	7[b]	14.3	9.9	23.0	8.7	8.7	2.8	NA
Total	49	17.6	11.3	28.4	11.1	10.8[a]	8.3	1.3

[a] These mean differences were statistically significant at the $p \leq .05$ level.

[b] These populations were too small to compute statistical significance.

- The overall mean gain of 10.8 N.C.E.s was statistically significant and educationally meaningful.
- Mean gains for grades six and seven were 8.6 N.C.E.s and 9.5 N.C.E.s, respectively. These gains were educationally meaningful.

TABLE 11

Mean N.C.E. Differences on the Language Expression Subtest of the California Achievement Test for Full-Year Combination Services Reading Skills Center Program Students, 1989-90

Grade	N	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	Difference Mean	Difference S.D.	Effect Size
4	7[b]	29.3	12.0	31.4	11.5	2.1	8.2	NA
5	8[b]	14.8	12.9	26.3	17.5	11.5	9.5	NA
6	13	22.0	7.1	24.8	14.2	2.8	14.6	0.2
7	13	24.5	14.9	31.1	15.7	6.6[a]	8.6	0.8
8	7[b]	21.6	6.4	22.6	6.8	1.0	5.4	NA
Total	48	22.5	11.7	27.4	14.0	4.9[a]	10.6	0.5

[a] These mean differences were statistically significant at the $p \leq .05$ level.

[b] These populations were too small to compute statistical significance.

- The overall mean gain of 4.9 N.C.E.s was statistically significant and represented a moderate effect size.
- The mean gain for grade seven was 6.6 N.C.E.s. This gain was educationally meaningful.
- The mean gain for grade six of 2.8 N.C.E.s was not statistically significant and represented a small effect size.

TABLE 12

Mean N.C.E. Differences on the Language Mechanics Subtest of the California Achievement Test for Full-Year Combination Services Reading Skills Center Program Students, 1989-90

Grade	N	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	Difference Mean	Difference S.D.	Effect Size
4	7[b]	18.9	24.3	24.9	21.5	6.0	8.4	NA
5	8[b]	15.4	10.2	27.0	12.1	11.6	13.2	NA
6	13	14.5	10.0	17.4	10.3	2.9	10.2	0.3
7	13	18.8	15.7	24.6	17.9	5.8	15.1	0.4
8	7[b]	20.1	13.1	25.3	11.3	5.1	11.3	NA
Total	48	17.3	14.4	23.2	14.8	5.9[a]	12.0	0.5

[a] These mean differences were statistically significant at the $p \leq .05$ level.

[b] These populations were too small to compute statistical significance.

- The overall mean gain of 5.9 N.C.E.s was statistically significant and represented a moderate effect size.
- The mean gains for grades six and seven of 2.9 N.C.E.s and 5.8 N.C.E.s, respectively, were not statistically significant and represented small effect sizes.

TABLE 13

Comparison of Mean N.C.E. Differences on the Reading Comprehension Subtest of the California Achievement Test, for Full-Year Combination Services Reading Skills Center Program Students, Over Two School Years, Fall-to-Spring, 1988-90

Year	N	Mean Difference[a]	S.D.	E.S.
1988-89	30	8.5	13.8	0.6
1989-90	49	10.8	8.3	1.3

[a] Both mean differences were statistically significant at the $p \leq .05$ level.

- The overall mean gain for 1988-89 was 8.5 N.C.E.s. The overall mean gain for 1989-90 was 10.8 N.C.E.s, showing an increase of 2.3 N.C.E.s. Both gains were statistically significant. The gain for 1988-89 represented a moderate effect size and the gain for 1989-90 was educationally meaningful.

TABLE 14

Comparison of Mean Gains on the Language Expression Subtest of the California Achievement Test, for Full-Year Combination Services Reading Skills Center Program Students, Over Two School Years, Fall-to-Spring, 1988-1990

Year	N	Mean Difference	S.D.	E.S.
1988-89	30	1.2	8.6	0.1
1989-90	48	4.9[a]	10.6	0.5

[a] This mean difference was statistically significant at the $p \leq .05$ level.

- The overall mean gain for 1988-89 was 1.2 N.C.E.s. This gain was not statistically significant. In 1989-90, the overall mean gain of 4.9 N.C.E.s was statistically significant and represented a moderate effect size.

TABLE 15

Comparison of Mean N.C.E. Differences on the Language Mechanics Subtest of the California Achievement Test, for Full-Year Combination Services Reading Skills Center Program Students, Over Two School Years, Fall-to-Spring, 1988-1990

Year	N	Mean Difference[a]	S.D.	E.S.
1988-89	30	6.1	12.7	0.5
1989-90	48	5.9	12.0	0.5

[a] These mean differences were statistically significant at the $p \leq .05$ level.

- The overall mean gain for 1988-89 was 6.1 N.C.E.s. The gain in 1989-90 was 5.9 N.C.E.s, a decrease of 0.2 N.C.E.s from the previous year. Both gains were statistically significant and represented moderate effect sizes.

Contrasts of Mean Gains for Two Modes of Instruction

The overall mean gains on the three CAT subtests were contrasted between students receiving face-to-face-only instruction and students receiving combination services. There were no statistically significant differences between results for the two modes of instruction on all three subtests. The results are shown in Table 16.

TABLE 16

Comparison of Overall Mean N.C.E. Differences for
Full-Year Reading Skills Center Students
Receiving Face-to-Face Instruction and Combination Services,
Fall-to-Spring, 1989-90

	Face-to-Face Instruction			Combination Services		
		Difference			Difference	
Subtest	N	Mean	S.D.	N	Mean	S.D.
Reading Comprehension	140	10.6	9.0	49	10.8	8.3
Language Expression	139	6.6	12.1	48	4.9	10.6
Language Mechanics	139	5.9	13.6	48	5.9	12.0

- Analyses of variance showed that there were no statistically significant differences between the two modes of instruction on any of the subtests.

IV. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The major goal of the Reading Skills Center program is to use individualized instruction to enable students to develop competency in reading. The main objective of the 1989-90 program was that students would make statistically significant N.C.E. mean gains from pretest to posstest on the Reading Comprehension, Language Expression, and Language Mechanics subtests of the CAT. An analysis of test results by OREA showed that the Reading Skills Center program had a positive impact on student achievement and, on the whole, met the program's criterion for success.

In addition, the program set a second goal to increase parental involvement in their children's education. A review of program materials and data retrieval forms, interviews with staff members, and an observation of a staff development workshop indicated that parental involvement activities had been expanded and staff development in this area had been intensified.

Student Achievement: Face-to-face-only Instruction

The statistically significant overall mean gains on all three CAT subtests indicate an improvement in reading and writing performance for face-to-face students as a whole from pretest to posttest. However, the results for grade four on the two subtests that test writing skills were not statistically significant. This may indicate a lack of improvement in writing

skills for fourth grade students.

The two-year comparison of overall mean gains indicates a more long-term improvement in reading skills for Reading Skills Center students. The decrease in overall gains on the Language Mechanics and Language Expression subtests may be the result of a lack of improvement in writing skills for this same two year period. However, since both the increase and decreases were small, some consistency in results from 1988-89 to 1989-90 is evident.

Student Achievement: Combination Services

Overall achievement results for students receiving combination services also indicate an improvement in reading and writing skills from fall 1989 to spring 1990. Individual grade results for grades six and seven showed an improvement in reading performance, as well. Grade seven was split in writing performance, showing a statistically significant increase on the the Language Expression subtest, but not on the Language Mechanics subtest. Grade six did not meet the program's criterion for success on any of the subtests that measure writing skills. Gains for grades four, five, and eight could not be interpreted in any of the three subtests, since the populations were too small to compute statistical significance.

A comparison with scores for 1988-89 shows a slight improvement over the long term in reading performance for combination services students. An improvement in writing is also indicated by results on the Language Expression subtest; this

year's statistically significant gain met the program's criterion for success, while last year's overall mean gain was not statistically significant. Although the gain on the Language Mechanics subtest dropped, the drop was very slight, only 0.2 N.C.E.s.

Contrasts of Mean Gains for the Two Modes of Instruction

There were no statistically significant differences between results for students receiving face-to-face-only instruction and those receiving combination services. Therefore, mode of instruction did not appear to have made a difference in student achievement.

Parental Involvement

To increase parental involvement in the Reading Skills Center program, several parental involvement activities were implemented. These activities varied in level of participation by parents. Aside from written correspondence in the form of progress reports, the component showing the highest rate of parent participation involved parents meeting with teachers.

Staff Development

The goals of the program were addressed by the Chapter 1 teachers in their instructional strategies and parental involvement activities. The staff development program offered intensive coverage of conceptual issues and practical reading skills teaching methods. In addition, the development of parental involvement activities was a major focus of the 1989-90 staff development workshops.

RECOMMENDATIONS

Based on the evaluation findings and other information presented in this report, the following recommendations are made:

- Since the results for grade four face-to-face only students and grade six C.A.I. students on the two subtests that measure writing skills did not meet the program's criterion for success, program staff should devote additional attention to writing instruction.

- Since less than one-fourth of the parents participated in all but one parental involvement component, efforts should be made to further increase parents' participation in the Reading Skills Center program.

APPENDIX A

Brief Description of Chapter 1 Nonpublic School Reimbursable Programs, 1989-90

Chapter 1 nonpublic school reimbursable programs provide supplementary, individualized instruction to students attending nonpublic schools in New York City. Students are eligible for Chapter 1 services if they live in a targeted attendance area and score below a designated cutoff point on New York State-mandated standardized reading tests.

On July 1, 1985, the Supreme Court held that instruction by public school teachers on the premises of nonpublic schools--local educational agencies' most common method of serving Chapter 1-eligible children--was unconstitutional. As a result, alternative methods for providing Chapter 1 services to eligible nonpublic school students were devised. Students attending nonpublic schools now receive Chapter 1 services at mobile instruction units, public school sites, leased neutral sites, nondenominational schools, and via computer-assisted instruction in designated classrooms in nonpublic schools.

CORRECTIVE READING PROGRAM

The Corrective Reading program provides instruction in reading and writing. The goal is to enable students to reach grade level in reading. During 1989-90, the program served 9,689 students in grades one through twelve in 177 nonpublic schools. The total included 3,824 students receiving computer-assisted instruction and 4,647 students receiving face-to-face instruction. In addition, 1,218 students received a combination of services. Program staff included one coordinator, four field supervisors, and 87 Corrective Reading teachers. Instruction was provided to small groups of students, one to five days a week, in sessions lasting 20 to 60 minutes. Chapter 1 funding totaled $10.7 million.

READING SKILLS CENTER PROGRAM

The Reading Skills Center program provides instruction in reading and writing to students in grades four through eight. The goal is to enable students to reach grade level in reading. During 1989-90, the program served 284 students from six nonpublic schools. Program staff included a coordinator and eight teachers. Instruction was provided to small groups of about five students each, three to five days per week, for sessions lasting from 45 to 60 minutes. Chapter 1 funding totaled $667,572.

CORRECTIVE MATHEMATICS PROGRAM

The Corrective Mathematics program provided instruction in mathematics. The goals are to deepen students' understanding of mathematical concepts and to improve their ability to perform computations and solve problems. During 1989-90, the program served 7,771 students attending 160 nonpublic schools. The total included 3,871 students receiving face-to-face instruction and 3,891 students receiving computer-assisted instruction. Program staff included a coordinator, one field supervisor, and 71 Corrective Mathematics program teachers. Instruction was provided to small groups of students, one to five days per week, in sessions ranging from 45 to 60 minutes. Chapter 1 funding totaled more than $7.4 million.

ENGLISH AS A SECOND LANGUAGE

The English as a Second Language program provides intensive English language instruction to limited English proficient students. The goal of the program is to help students gain the listening, speaking, reading, and writing skills necessary to improve their performance in school. During 1989-90, the program served 3,017 students in kindergarten through eighth grade in 77 nonpublic schools. The total included 2,286 receiving face-to-face instruction, and 731 students receiving computer-assisted instruction. In addition, a Read-Along component provided some students with tape recorders, storybooks, and audio tapes for home use. Program staff included a coordinator, two field supervisors, and 37 teachers. Instruction was provided to small groups of students two to three days a week in sessions ranging from 30 to 60 minutes. Chapter I funding totaled $3.4 million.

CLINICAL AND GUIDANCE PROGRAM

The Clinical and Guidance program provides diagnostic and counseling services to students enrolled in Chapter I nonpublic school programs--Corrective Reading, Reading Skills Center, Corrective Mathematics, and English as a Second Language. The goal of the program is to alleviate emotional or social problems that interfere with the students' ability to profit from remedial education. During 1989-90, the program served 6,203 students from 150 nonpublic schools. The staff included two coordinators, two field supervisors, 62 guidance counselors, 43 psychologists, one psychiatrist, and 21 social workers. Chapter 1 funding totaled $6.7 million.